European Partnership

VOUCHER SCHEMA FEASIBILITY REPORT

Deliverable D4.7 - May 2024

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List of acronyms

Acronym	Full title
EC	European Commission
ECA	European Court of Auditors
EIC	European Innovation Council
EU	European Union
ESG	Environmental, Social, and Governance
FTE	Full-time Equivalent
GVA	Gross Value Added
HEU	Horizon Europe
HNIS	Hydro Nation Innovation Service
NIA	National Innovation Agency
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
SFRD	Sustainable Finance Disclosure Regulation
SME-I	Small and medium-sized enterprises Instrument
SMEs	Small and medium-sized enterprises
SRIA	Strategic Research and Innovation Agenda
SWAN	Smart Water Networks Forum
TRA	Technology Readiness Assessment
TRL	Technology Readiness Level
Water4All	European Partnership on Water Security for the Planet

Glossary[1]

Bank lending: a form of financing whereby a company borrows funds from a bank and commits to repay them in full over a defined period at a specified interest rate. Bank lending can be presented in different forms and products. however, for the purpose of this report it is being classified into two key areas of financing: financing investment costs and financing working capital.

Bootstrapping: a process that involves establishing and building a business with personal savings, earnings from initial sales, and borrowed or invested money from family and friends. This is a way to build a small business without giving up equity or taking out substantial bank loans.

Business angel: a private individual, often with a high net worth, and usually with business experience, who directly invests part of their assets in new and growing private businesses. Business angels can invest individually or as part of a syndicate where one angel typically takes the lead role.

Crowdfunding: an emerging alternative source of financing. It refers to open calls to the public, generally via the Internet, to finance a project through either a donation, or a monetary contribution in exchange for a reward, product pre-ordering, lending, or investment. Any type of project can launch a crowdfunding campaign: Small and Medium-sized Enterprises (SMEs), artists, innovative start-ups, and social entrepreneurs may all benefit from different forms of crowdfunding. Crowdfunding – this alternative form of fundraising that is collective, participatory, and interactive – is becoming increasingly important. It has the potential to bridge the financing gap many start-ups face and to stimulate entrepreneurship.

Delegated act: a legal instrument that is subordinate to an EU (European Union) regulation or directive. Delegated Acts are used to specify and implement the technical details of legislation, providing more specific rules and guidelines on how a particular law should be applied. These acts are typically used to fill in the gaps or provide further clarification on the provisions of the main legislation. Delegated Acts are a way for the European Commission, which is responsible for proposing and implementing EU legislation, to have the authority to adopt rules or measures that are needed to ensure the effective application of a given regulation or directive. However, these acts are subject to control and scrutiny by the European Parliament and the Council of the European Union, which can object to a Delegated Act within a specified period if they believe it exceeds the Commission's implementing powers or is not in line with the EU's.

EU Green Bond Standard: This initiative aims to establish a unified standard for green bonds within the EU. Green bonds are to be used to finance environmentally friendly projects, and a common EU standard under development is expected to increase transparency and trust among investors.

Innovation Voucher Schema: Innovation vouchers are small financial aids in the form of subsidies, bonus or credits provided by local, regional or national governments to Small- and Medium-sized Enterprises to purchase services from knowledge providers such as universities, research centres, or consulting firms with a view to introducing new products, processes, or services in their business operations.

Grants: a type of financial assistance typically given by a government or an organisation to a wide range of beneficiaries such as private individuals, companies, public institutions, or non-profit organisations. Grants are typically awarded in support of a specific policy or purpose that serves some larger good. For

[1] This glossary will be updated and completed in further deliverables. It provides standard definitions to support dialogue between innovators and investors.

example, education, research, innovation, culture, social welfare, environment, economic development, or humanitarian aid. Grants assistance is channelled for projects that are characterised by high-risk and/or long-term benefits. Unlike loans, grants do not have to be repaid. Increasingly, grant funding is combined with a variety of other public and private finance (so-called ‘blended finance’).

Greenwashing refers to the practice of making misleading or false claims about the environmental benefits of a product, service, or company in order to present it as more environmentally friendly or sustainable than it actually is. This deceptive marketing tactic is used to capitalize on the growing consumer demand for eco-friendly and sustainable products and services. In essence, it involves painting a false "green" image to attract environmentally conscious consumers and boost sales.

Growth capital: a form of venture capital used to consolidate the company’s financial structure for the next stage of its growth, including acquisitions, internationalisation, or the development of new product ranges, for example. Growth capital funds will only invest in companies with a recurring cash flow.

Net zero: net zero emissions describes the state where emissions of carbon dioxide due to human activities and removals of these gases are in balance over a given period.

Private equity: refers to capital that is directly invested in private companies. Private equity consists of taking minority or majority stakes in private companies (which are not listed on stock exchanges). The two most common types of private equity investment are Growth capital and venture capital.

Startup: an independent organization, which is younger than five years and is aimed at creating, improving, and expanding a scalable, innovative, technology-enabled product with high and rapid growth.

Scaleup: a company seeing accelerated growth after demonstrating a product or service-market fit, which is looking to grow in market access, revenues, and the number of employees.

Spinoff: not a company or an independent organization but a part of an institutional organization, e.g. university, school of economics, or an organization.

Sustainable Finance Disclosure Regulation: The Sustainable Finance Disclosure Regulation (SFDR) is an EU regulation designed to enhance transparency and disclosure of sustainability-related information within the financial sector. It requires financial market participants, including investment managers, to disclose the Environmental, Social, and Governance (ESG) factors that may impact their investment decision-making processes. The SFDR also establishes specific disclosure obligations for financial products, such as funds and investment portfolios, to inform investors about the sustainability characteristics of those products. By providing this information, the SFDR aims to ensure that investors can make informed decisions and allocate capital to investments that align with their sustainability preferences. It is part of the EU's broader efforts to promote responsible and sustainable financial practices and increase the flow of investments into sustainable activities and projects.

Taxonomy Regulation: The Taxonomy Regulation is a regulatory framework within the EU that aims to establish a unified and standardized classification system for economic activities that can be considered environmentally sustainable. It provides clear criteria and definitions for what constitutes a "green" or environmentally friendly activity. The Taxonomy Regulation serves as a foundation for sustainable finance by helping investors, companies, and financial institutions identify and promote investments that align with the EU's environmental and sustainability objectives. It contributes to the EU's goal of facilitating sustainable economic growth and transitioning to a more environmentally responsible financial sector by providing clarity on which activities are considered sustainable.

Technology Readiness Level (TRL): a method for estimating the maturity of technologies during the acquisition phase of a program. TRLs enable consistent and uniform discussions of technical maturity across different types of technology. TRL is determined during a Technology Readiness Assessment (TRA) that examines program concepts, technology requirements and demonstrated technology capabilities. TRLs are based on a scale from 1 to 9 with 9 being the most mature technology.

Venture capital: Venture capital can take several forms, for example from seed funding to scale from a prototype to a product or service, to early-stage funding to help entrepreneurs grow a company and expand working capital, to late-stage to contribute to market expansion. This type of investment is mainly directed at spinoffs and startups seeking financing, primarily for new, innovative, and disruptive technologies and services.

Abstract

This report explores the potential of Voucher Schemes as policy instruments in fostering collaboration between knowledge/solution providers and potential beneficiaries across the innovation process. Voucher schemes, characterized as small financial aids, are designed to facilitate collaboration between SMEs and knowledge providers, such as universities or research centres, throughout various phases of innovation. This deliverable seeks to elucidate the role of voucher schemes in advancing water sector innovation policies. The primary objective is to establish a knowledge basis supporting collaborative efforts to analyse the alignment of voucher schemes with innovation development priorities, engaging living labs, innovators, and potential users. Additionally, the report aims to provide pertinent information for national authorities to adapt existing instruments or create new ones to address water challenges effectively. By fostering collaboration and knowledge exchange, the deliverable aims to mobilize lessons learned from EU experience and stakeholders to enhance the design and evaluation of innovation instruments within the Water4All initiative. Structured to provide a comprehensive overview, the deliverable explores the definition, purpose, advantages, drawbacks, implementation preconditions, and performance assessment of voucher schemes. It further distinguishes between process-oriented and product-oriented voucher schemes and concludes with insights drawn from both the paper and EU's experience, followed by considerations for future action.

About Water4All

Water4All is a Research and Innovation Partnership set up in Horizon Europe (HEU). It aims at enabling water security for all in the long term by boosting systemic transformations and changes across the water research and innovation pipeline, fostering the matchmaking between problem owners and solution providers. In addition to the launch of calls for research and innovation proposals, Water4All offers a portfolio of additional activities including the alignment of water programmes, demonstration projects, international cooperation, the wide transfer and dissemination of activities and results, networking, and capacity building.

The Partnership will provide relevant outcomes for a better understanding of water processes in several scientific fields, and it will support European and international policy-oriented initiatives, notably the European Green Deal and the United Nations Sustainable Development Goals. At the date of publication of this deliverable, the consortium counts over 90 partners stemming from national research funding agencies, public authorities including local authorities, research performing organisations, water associations, and networks at European, national, or regional levels. Partners have decided to join forces to address the big challenge of water for all. The Partnership is structured around five operational pillars looking at strategic issues (Pillar A), development of knowledge through calls for proposals (Pillar B), science – policy – end-users' interface (Pillar C), demonstration (Pillar D), and international cooperation (Pillar E).

WATER4ALL VOUCHER SCHEMA FEASIBILITY REPORT:

Lessons learnt to develop a roadmap to enhance the design and implementation of Voucher Schemes within the Water4All Partnership

Presentation

This deliverable is part of the **Task D.3** on **engaging with the development/investment programs** and particularly of **Subtask D3.1** aiming at **support the market uptake on water innovations**. The main purpose of this deliverable consists in understanding the potential of Voucher Schemes as policy instruments to trigger and support collaboration between knowledge or solutions providers on one side and the potential beneficiaries of these innovations, along the full innovation process from the development of the ideas to the deployment of innovations.

In particular, voucher schemes, as explained below, are small financial aids in the form of subsidies, bonus or credits, designed to support small and medium enterprises to start a mutually beneficial collaboration with a relevant knowledge provider, such as a university, research centre or a laboratory in any phase of the innovation process (see **Deliverable D4.2**)[2] .

As part of Horizon Europe, the implementation of the Water4All Strategic Research and Innovation Agenda (**SRIA**) leverages existing mechanisms to engage SMEs in the innovation process. Most national governments have progressed in implementing voucher schemes to foster innovation development among SMEs and align these efforts with regional development priorities. Recognizing the demonstrated potential of this institutional and financial infrastructure provided by both the EU and national partners, this deliverable aims to provide essential knowledge for understanding the potential of voucher schemes to advance innovation policies in the water sector.

The central objective of this deliverable is to provide a knowledge basis to support collaborative efforts aimed at analysing the alignment of voucher schemes with the innovation development priorities of living labs and innovators, as well as identifying incentives for potential innovation users to actively engage. The report will serve as a foundation for organizing a series of seminars and discussions to facilitate dialogue among financial sources, solution providers, and potential beneficiaries.

At a broader level, the deliverable aims to provide relevant information to support national authorities in adapting existing instruments or creating new ones to drive water innovation advancement and address regional and local water challenges effectively. By fostering collaboration and knowledge exchange, these efforts will culminate in the mobilization of lessons learned from extensive EU experience, living labs, financial sources, and other stakeholders. Ultimately, this collective insight will contribute to enhancing the design and ex-post evaluation of innovation instruments within the Water4All initiative.

[2] OUTLOOK OF EXISTING FINANCIAL/ DEVELOPMENT PROGRAMMES. Deliverable D4.2 - May 2023.

By providing this comprehensive overview and guidance**, the report aims to facilitate informed decision-making and strategic action to maximize the impact of voucher schemes in driving water sector innovation within the Water4All initiative**.

The deliverable is structured as follows: we begin by **defining voucher schemes and their role in EU innovation policy** in the next section. Following this, we delve into the purpose of **voucher schemes** as instruments to address market failures along the innovation process (section 2). This discussion introduces the issue of **targeting voucher schemes** (section 3) and outlines **their advantages in driving SME engagement in innovation** (section 4). We then address the identification of **potential drawbacks** (section 5), the **preconditions** necessary for effective implementation (section 6), and **recommendations** for assessing voucher scheme performance (section 7).

In section 8, we distinguish between **process-oriented voucher schemes**, as discussed in this report, and **product-oriented schemes** used to facilitate market uptake and dissemination of mature water innovations. The final two sections offer conclusions drawn from both the paper and the EU's experience with innovation vouchers (section 9), followed by final remarks and considerations for the way forward (section 10).

1. Understanding Voucher Schemes

Voucher schemes are small, non-repayable grants designed to facilitate collaboration between SMEs and knowledge providers. These schemes aim to stimulate innovation by incentivizing SMEs to engage in collaborative projects with external experts or organizations. Innovation vouchers typically take the form of entitlement-based grants awarded to SMEs, allowing them to purchase services from pre-approved knowledge providers. The primary objective of voucher schemes is to encourage SMEs, especially those not currently involved in innovation, to initiate collaborations with knowledge organizations and providers to develop innovative projects.

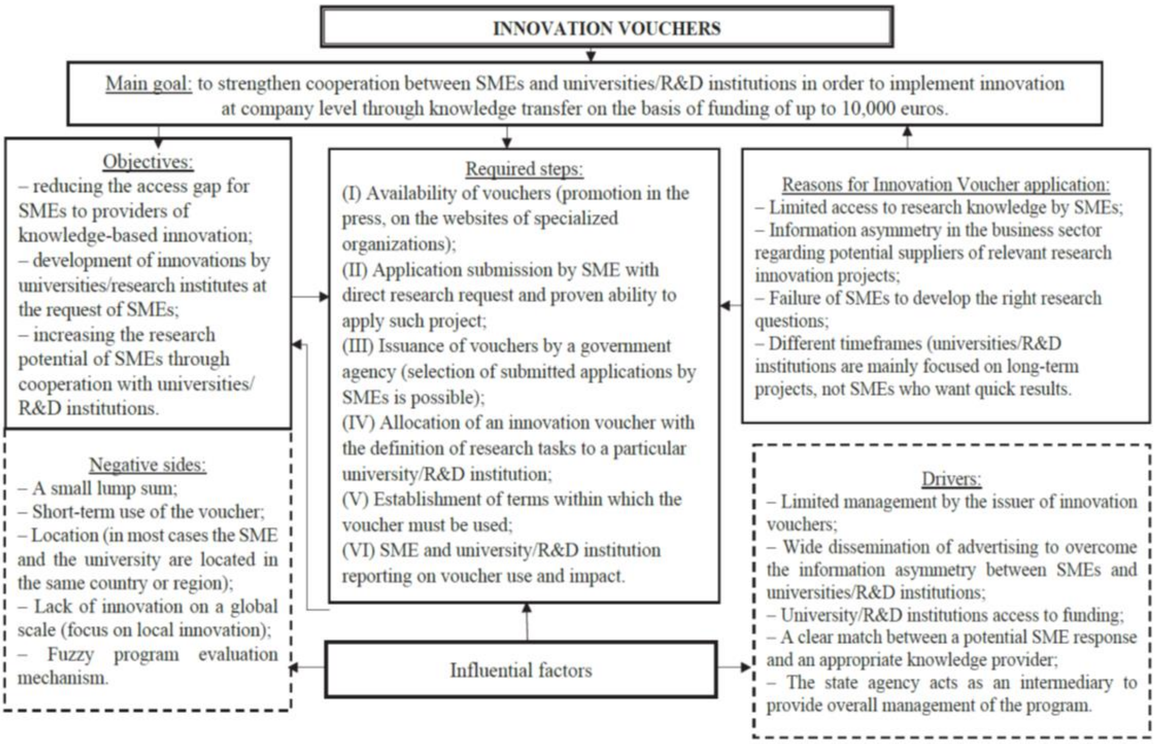
SMEs often face limitations in developing innovations due to funding constraints and a lack of expertise. Innovation vouchers, a popular funding mechanism, offer state support funding, typically up to €10,000, to SMEs. These vouchers are used to engage knowledge providers like universities and research institutes, fostering innovation, collaboration, and knowledge transfer.

Innovation vouchers enable SMEs without internal R&D (Research & Development) capabilities to access expertise from external institutions. They're administered at local, regional, or national levels by public authorities, aligning with predetermined program goals. This support not only benefits SMEs but also provides funding to R&D and knowledge providers for innovation development.

In examining the use of innovation vouchers globally, it's evident that many countries, particularly in the EU and other regions, have implemented such programs. The popularity of innovation vouchers has grown steadily since 2008, although there has been a recent decline. Detailed analysis reveals common characteristics, including target groups, types of knowledge providers, funding ranges, program durations, and project co-financing requirements.

Voucher schemes are essentially government-funded initiatives that provide financial assistance or subsidies to businesses, typically SMEs, to access specific services or resources aimed at fostering innovation and development. **Figure 1** presents the basic characteristics of innovation vouchers:

FIGURE 1: DEFINING CHARACTERISTICS OF INNOVATION VOUCHERS



Source: European Commission Voucher schemes in member States; Cornet, Vroomen Björn, Marc van der Steeg, 2006; Shkarlet, Kholiavko, Dubyna, 2019, cited in Ivashchenko et al., 2021.

These schemes are often part of regional policies geared towards stimulating economic growth and competitiveness by supporting the innovation ecosystem (see **Box 1** and **Box 2** for details on vouchers at EU scale).

Here's how voucher schemes can be better defined:

- **Scope and Focus**: Define the specific objectives of the voucher scheme. Is it aimed at promoting R&D activities, fostering technology adoption, enhancing market access, or a combination of these goals
- **Eligibility Criteria**: Clearly outline the criteria that businesses must meet to qualify for vouchers. This could include factors such as size, sector, innovation potential, and geographic location.
- **Types of Vouchers**: Identify the types of support that will be provided through the scheme. This might include vouchers for innovation consulting, technology transfer services, research facilities, prototyping, testing, or training.
- **Funding Mechanism**: Determine how the voucher scheme will be financed, whether through government budgets, public-private partnerships, or other funding sources.
- **Administration and Governance**: Establish the administrative structure responsible for managing the scheme, including the selection process for beneficiaries, monitoring and evaluation mechanisms, and transparency measures.
- **Evaluation and Impact Assessment**: Implement mechanisms for assessing the effectiveness and impact of the voucher scheme in achieving its objectives. This could involve tracking key

performance indicators such as the number of innovations generated, increased productivity, job creation, and business growth.

Key specific characteristics of voucher schemes include:

1. **Simplicity of Administration**: Voucher schemes are designed for ease of administration, with minimal management requirements and effective auditing mechanisms to ensure compliance.
2. **Entitlement-Based Grants**: Unlike competitive grants, voucher schemes are often entitlement-based, meaning that SMEs meeting preset eligibility criteria receive vouchers without competing against other applicants. This approach reduces application and administration costs.
3. **Reduced Search Costs**: By providing SMEs with a pre-approved list of knowledge providers, voucher schemes help reduce search costs and mitigate the risk of engaging with unqualified providers.
4. **Stimulation of Collaboration**: Voucher schemes aim to encourage collaboration between SMEs and knowledge providers, fostering innovation in sectors where formal research and development activities may be less common.
5. **Brokerage Mechanisms**: Many voucher schemes incorporate brokerage mechanisms facilitated by intermediaries experienced in innovation. These intermediaries help match SMEs with suitable knowledge providers, streamline contracting processes, and ensure project adherence.

BOX 1. VOUCHER SCHEMES IN THE EU

Voucher schemes play a crucial role in the **Horizon Europe** program by facilitating collaboration between SMEs and knowledge providers to foster innovation. These schemes provide financial support in the form of vouchers, which are small, non-repayable grants that SMEs can use to purchase services from external knowledge providers.

The main objective of voucher schemes within Horizon Europe is to encourage SMEs that may not be actively engaged in innovation to start collaborating with knowledge organizations and providers. By doing so, SMEs can access expertise, resources, and support to develop innovative projects or adopt new technologies.

Voucher schemes in Horizon Europe aim to address market failures such as limited access to financing, lack of awareness of available support services, and asymmetric information between SMEs and knowledge providers. By providing financial incentives and reducing barriers to collaboration, voucher schemes stimulate innovation and contribute to economic growth and competitiveness.

Overall, voucher schemes serve as a mechanism to support SMEs in their innovation efforts, promote collaboration, and enhance the overall innovation ecosystem within the European Union.

The ways in which voucher schemes can be applied in Horizon Europe are diverse:

- Distributed through **cascade financing**. The calls are part of the project funded through Horizon Europe.
- The **EIC (European Innovation Council) Accelerator pilot** (**SME Instrument**) provides full-cycle business innovation support.
- In addition to the **EIC Accelerator**, the **EIC Transition** is oriented to Technology validation and spin-out.
- **Fast Track to Innovation** accelerates the market uptake of ground-breaking innovations by providing funding in an open, accessible scheme.
- **European Partnership on Innovative SMEs** aims to boost cooperation between SMEs.
- **Key Innovation Communities KICs** might also use vouchers to foster innovations as part of the action program of strategic partnerships between businesses, research institutions, and education organizations.
- **Eurostars** is part of the European Partnership on Innovative SMEs and is the largest international funding programme for SMEs wishing to collaborate on R&D projects that create innovative products, processes or services for commercialisation.

BOX 1. VOUCHER SCHEMES IN THE EU

For additional information on EU innovation vouchers programmes see Backer Gonzalez Salido (2019).

Innovation Voucher Schemes are defined in the Interreg programme[3] as “simple and an effective instrument of regional and territorial development” focused in innovation on SMEs. The study about voucher schemes 'Europe's Innovation Voucher Schemes'[4] was carried out in the framework of the Interreg Europe ESSPO project with the objective of evaluating these schemes, concluding that its popularity is due to the fact that the flexibility of support through vouchers makes it possible to reach segments of the population or firms for which other subsidies are not suitable.

In addition to the characteristics outlined above, voucher schemes typically involve two main target groups: SMEs and knowledge providers. SMEs, often more small than medium-sized, face higher barriers to engaging in innovation, which is critical for the transformation of sectors such as water. They often have limited capacity to absorb external knowledge, and collaborative learning may not be central to their business practices. Some voucher schemes specifically target non-innovative firms, while others focus on particular sectors such as digital, creative industries, and other knowledge-intensive services, with water increasingly meeting the criteria for eligibility.

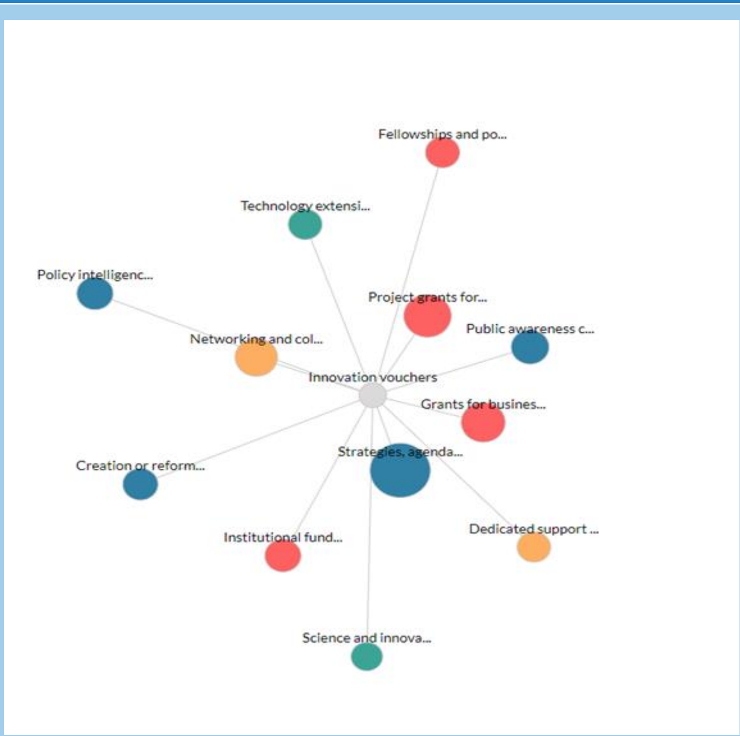
Knowledge providers, including public research organizations or private sector consultancy firms, tend to be more industry-oriented and better suited than universities to address the needs of SMEs. Their expertise and industry focus enable them to offer tailored solutions that meet the specific challenges faced by SMEs in implementing innovation projects within the water sector.

BOX 2. VOUCHER SCHEMES AS PART OF THE INNOVATION POLICY INSTRUMENTS IN THE EU

The **OECD STIP Compass**[5] collects in one place qualitative and quantitative data on national trends in science, technology and innovation policy. A total of 24 countries has active innovation voucher initiatives available on the STIP Compass platform, with SMEs and Entrepreneurs as the main target groups. The STIP figure below illustrates the **relationship between innovation vouchers and other policy instruments**. Vouchers are positioned at the centre of the figure, and instruments closer to them are often utilized jointly to address the same policy theme. The size of each bubble is proportional to the number of initiatives employing the respective policy instrument. According to data from the STIP Compass database until April 2024, vouchers are incorporated in 1,802 strategies, agendas, and plans. They are commonly paired with 1,097 programs of project grants for public research initiatives, 906 grants for business R&D innovation initiatives, and 813 networking and collaborative platform initiatives.

[3] Voucher Schemes – a great career since end of the 1990s | Interreg Europe - Sharing solutions for better policy
[4] Prezentacja programu PowerPoint (regionalstudies.org)
[5] Innovation vouchers | STIP Compass (oecd.org)

BOX 2. VOUCHER SCHEMES AS PART OF THE INNOVATION POLICY INSTRUMENTS IN THE EU



Source: EC-OECD (2024)

Vouchers **are a good start** in supporting collaboration between SMEs and knowledge providers, but more sophisticated and intensive forms of collaboration for innovation projects are better served by well-designed grants, which can be combined with lending.

While voucher schemes serve as a starting point for collaboration, more complex and intensive innovation projects may benefit from additional funding mechanisms such as well-designed grants, which can complement voucher schemes. Overall, voucher schemes play a valuable role in promoting collaboration and driving innovation among SMEs and knowledge providers[6].

2. Purpose of Voucher Schemes: Addressing Market Failures

The efficacy of voucher schemes lies in their ability to combat critical market failures that hinder the implementation of existing innovations and the cultivation of innovative cultures within SMEs. These schemes serve as strategic tools aimed at overcoming two primary **market failures**:

1. **Capability Failure**.

[6] It should be noted that vouchers can have other uses beyond promoting collaboration in developing innovations per se (Bohnenberger, 2020). In particular, they can increase citizens' well-being and induce sustainable energy and water behaviours, for example, by incorporating small innovative technologies at the household scale (Lee, Lee, & Kim, 2020). See also the final note of this deliverable on the comparison between product and innovation vouchers.

Voucher schemes target capability failures encountered by smaller firms by instigating behavioral shifts towards proactive learning and fostering sustainable collaboration with knowledge providers. Key points include:

- Behavioural Changes: Voucher schemes incentivize SMEs to engage in collaborative learning processes, allowing knowledge providers to test real business needs while SMEs contribute to the development of tailored solutions.

- Development of Innovation Capabilities: Through collaborations, SMEs acquire a spectrum of innovation capabilities, encompassing technical expertise, management skills, and proficiency in accessing external advice and services.

- Mutual Learning: Knowledge providers gain insights into industry end-users' needs, refining their service offerings to cater effectively to the market.

2. **Information Failure**.

Voucher schemes address information failures, particularly in terms of asymmetric and incomplete information, which pose barriers to effective matching between SMEs and knowledge providers. Key points include:

- Asymmetric Information: Severe information asymmetry exists between knowledge providers, notably public research organizations, and SMEs. Voucher schemes provide signalling mechanisms to identify reputable knowledge providers, mitigating the risk of adverse selection.

- Incomplete Information: SMEs often lack awareness of available solutions for technology adoption, and when aware, may question the quality of potential providers. Conversely, knowledge providers may not grasp SMEs' needs or lack incentives to develop tailored solutions.

In order to enhance the potential of voucher schemes to overcome market information barriers, most successful voucher schemes often incorporate brokerage services. These services play a crucial role in facilitating the alignment of SMEs with suitable providers and bridging information gaps, ensuring that SMEs can access the expertise and resources they need to effectively utilize the vouchers.

Summing up: By strategically targeting capability and information failures, voucher schemes play a pivotal role in fostering innovation adoption and cultivating collaborative ecosystems conducive to SME growth and competitiveness. Through incentivizing behavioural shifts and facilitating effective information exchange, these schemes pave the way for enhanced innovation cultures and sustainable economic development within SME communities (see **Box 3** for further details on how to tackle innovation culture challenges in SMEs).

BOX 3. PERSISTENT CHALLENGES IN WATER SCHEME IMPLEMENTATION: FOSTERING LONG-TERM COLLABORATION AND INNOVATION IN SME BUSINESS MODELS

The implementation of water schemes has revealed a persistent challenge: fostering enduring changes in innovation culture within SMEs and establishing long-term cooperation with knowledge providers. Ex-post evaluation studies consistently highlight this issue, indicating that while water schemes may initially stimulate innovation, sustaining these changes and nurturing lasting partnerships remains a significant hurdle. This section delves into the **complexities** surrounding this challenge, exploring strategies to promote long-term collaboration and embed innovation into the business models of SMEs operating within the water sector. These are some key conclusions from data-based evaluation studies:

- The initial results are always positive, companies acquire vouchers and use them to incorporate innovations

BOX 3. PERSISTENT CHALLENGES IN WATER SCHEME IMPLEMENTATION: FOSTERING LONG-TERM COLLABORATION AND INNOVATION IN SME BUSINESS MODELS

(Kleine, Heite & Huber, 2022; Sala, Landoni & Verganti, 2016; Caragliu et al, 2022; Chapman & Hewitt-Dundas, 2018; Hlaváček, 2017).

- However, the relationship between the innovating firm and the innovation seeker is not always sustained beyond the project developed by the voucher (Kleine, Heite & Huber, 2022; Bakhshi et al, 2015).
- For instance, in the Czech Republic (Hlaváček, 2017) only 17% of the voucher recipient firms, maintained contact with the partner they started working with as a result of the voucher. According to Matulova et al. (2015), using another sample and period this rate was 36.7%.
- The innovation voucher systems whose results has been possible to explore have as their main problem the lack of capacity to induce innovative behaviour in the long term (McDonald, Claire & McPherson, 2018).
- This rule is not without exemptions. In Ireland (Whelan et al, 2019), long lasting innovative practices seem to have been sustained because firms could acquire the same or new vouchers repeatedly across time.
- There is no impact on ongoing cooperation (Kleine, Heite & Huber, 2020) nor on medium-term network externalities (Bakhshi et al, 2015).

3. Effectiveness of Voucher Schemes: Good Practices in Targeting Voucher Schemes

Understanding the market barriers that voucher schemes aim to overcome clarifies the targeted agents at both ends of the collaboration: solution providers on the supply side and potential knowledge users on the demand side. Success in implementing voucher schemes cannot be solely measured by the number of vouchers issued or financial expenditures. Breaking capability and information barriers hinges on effective targeting[7].

Targeting is a critical aspect of designing and implementing voucher schemes. By aligning knowledge supply with SME demand, policymakers can optimize the impact of these schemes in fostering innovation and collaboration.

Several best practices emerge to ensure voucher schemes effectively reach their intended beneficiaries and fulfill their objectives. Let's delve into these practices to comprehend their role in bolstering SMEs and fostering innovation through voucher schemes[8, 9, 10].

1. **Targeting Knowledge Providers**:
    a. Policy makers should target knowledge providers with the necessary competencies and motivation to deliver knowledge services.
    b. This involves assessing whether knowledge providers have the technical skills and willingness to work with SMEs, which can be facilitated through ex ante consultation and effective technology transfer offices.
2. **Matching Demand and Supply of Knowledge**:

[7] See: Cirera, X., Frias, J., Hill, J., & Li, Y. (2020).
[8] To minimise the administrative barrier, an online platform can be set up to simplify the contact between the voucher issuer and the private and public entities involved in the project (Neussner & Furundzija, 2022).
[9] Guimón & Paunov (2019), shows that the voucher system is flexible and is a matter of making a good analysis of the situation and adapting it to the needs of companies and other entities in the voucher application region.
[10] Targetting is facilitated by the flexibility of voucher schemes. As the bureaucracy is relatively simple and they can be adapted to the needs of companies and public institutions in the region (Klímová & Zitek, 2020; Langhorn, 2014, and Ledeneva & Parfenova, 2017).

c. Targeting should focus on ensuring the quality and diversity of expertise among potential knowledge providers, aligning with the needs and absorptive capacity of target SMEs.

d. Effective brokerage can facilitate quick matching between supply and demand for knowledge services, typically performed by a public agency or industry experts, and assisted by technology transfer offices or innovation service agencies.

3. **Prioritizing Non-Innovative First-Time Applicants**:

e. Efforts should be made to prioritize first-time applicants, particularly non-innovative SMEs, to encourage their involvement in innovation activities.

f. Proactive advertising and outreach are essential to increase awareness and uptake of policy support among these SMEs.

4. **Follow-Up Support and Evaluation**:

g. Voucher schemes typically provide small support with limited scope, requiring follow-up support to help SMEs continue growing their capabilities.

h. Evaluation of longer-term impacts, especially regarding the persistence of behavioral additionality, is critical, necessitating efforts to collect longitudinal data.

5. **Avoiding Low-Hanging Fruits and Continuous Effort**:

i. Continuous effort should be directed towards prioritizing non-innovative first-time applicants over picking low-hanging fruits.

j. Proactive advertising, outreach, and continuous support are essential to encourage SME participation and ensure the sustainability of voucher schemes.

By implementing these good practices, policymakers can enhance the effectiveness and impact of voucher schemes in fostering innovation and collaboration among SMEs and knowledge providers.

Matching SMEs and solution providers requires on purpose targeting efforts in the design and implementation of the voucher scheme.

4. Realizing the Potential of Innovation Vouchers: Driving SME Engagement in EU Innovation Policies

Vouchers have emerged as a cornerstone of the European Union's research and development agenda and regional innovation policies, primarily due to several key advantages that make them uniquely suited to engage SMEs in innovation activities. The implementation of voucher schemes should be based on making the most of the following practical advantages of vouchers as identified in the literature:

1. **Simplicity and Accessibility**.

   Voucher schemes offer a level of simplicity and transparency that is unmatched by many other innovation policy instruments (Spiesberger & Schönbeck, 2019; Langhorn, 2014). Unlike competitive grant schemes that can be challenging to navigate and monitor, voucher schemes are entitlement-based grants. This means that all applicants meeting the general requirements are funded, leading to lighter management requirements and more effective auditing. The streamlined procedures and reduced bureaucracy associated with voucher schemes make them particularly attractive to SMEs and policymakers alike.

2. **Adaptability to Innovation Policy Goals.**

   One of the key strengths of vouchers is their flexibility in incentivizing and supporting a wide range of innovative activities (Klímová & Zitek, 2020; Langhorn, 2014). Unlike other types of grants, innovation vouchers are less prescriptive, providing recipients with considerable freedom in how they utilize the funding. This adaptability allows SMEs to address their specific needs and circumstances, whether it be applied research, operations improvement, intellectual property issues, market studies, or management training (Guimón & Paunov, 2019).

3. **Demand-Oriented Approach.**

   Voucher schemes are inherently demand-oriented, with projects tailored to the actual needs of SMEs (Jugend et al, 2020; Ledeneva & Parfenova, 2017; Sala, Landoni & Verganti, 2016; Lim, 2023). This approach fosters effective knowledge transfer and resource allocation, bypassing the need for third-party selection committees to determine project value. By aligning with SMEs' real-world challenges and opportunities, voucher schemes ensure that innovation efforts are targeted and impactful (Ivashchenko, Kornyliuk & Polishchuk, 2021; Klímová & Zitek, 2020).

4. **Triggering Behavioral Change.**

   Perhaps the most significant advantage of vouchers is their ability to catalyze behavioral change among SMEs and knowledge providers, fostering collaborative innovation in various forms. For instance, vouchers can initiate follow-up collaborations, leading to extended commercial relationships between SMEs and knowledge providers (Mvulirwenande & Wehn, 2020; Spiesberger & Schönbeck, 2019; McDonald, Claire & McPherson, 2018).

Furthermore, these collaborations may pave the way for joint applications for additional public funding, allowing innovation projects to evolve and scale over time. By providing SMEs with an initial opportunity to engage in collaboration according to their unique needs and circumstances, vouchers lay the foundation for sustained innovation and growth (see **Box 4** for ideas in this regard).

In summary, vouchers have gained popularity in the EU's innovation landscape due to their simplicity, adaptability, demand orientation, and transformative potential in driving collaborative innovation among SMEs and knowledge providers. As a vital policy instrument, vouchers play a crucial role in unlocking the innovation potential of SMEs and fostering dynamic and resilient economies across the region[11].

BOX 4. FROM CONCEPT TO COLLABORATION: THE EVOLUTION OF SME FUNDING IN EUROPE

In just a decade, Europe witnessed a rapid transformation in its approach to supporting SMEs in their collaboration to knowledge providers towards innovation and growth. The inception of the SME Instrument in 2014 marked a pivotal moment, drawing inspiration from the USA's SBIR programme and introducing a "funnel model" aimed at nurturing promising innovation projects from feasibility studies to commercialization.

The SME Instrument, characterized by its highly competitive nature, was tailor-made to fuel the ambitions of innovative SMEs with the potential for high growth. Through a combination of grants and coaching services, it provided vital support for SMEs to develop and bring groundbreaking innovations to market. As part of the broader Horizon 2020 initiative, voucher schemes found their place within the Eurostars funding programme, facilitating collaboration on R&D projects among SMEs and their partners.

Eurostars, a flagship initiative under the European Partnership on Innovative SMEs, emerged as a beacon for SMEs seeking international collaboration on R&D and innovation projects. The partnership involves 48 National Funding

[11] For a discussion on some design recommendations,see: Mvulirwenande & When (2020); Spiesberger & Schönbeck (2019); McDonald, Claire & McPherson (2018).

BOX 4. FROM CONCEPT TO COLLABORATION: THE EVOLUTION OF SME FUNDING IN EUROPE
Authorities and/or Agencies under the Umbrella of Eureka and is coordinated by the Eureka Secretariat in Brussels. With the active involvement of 48 National Funding Authorities and Agencies, Eurostars leverages the expertise and resources of a diverse network of partners to drive innovation across borders. Building on the success of Eurostars 1 and Eurostarts 2, the programme continues to expand the range of collaborations and opportunities for SMEs at the EU and on a global scale. The SME Instrument was set up under the Horizon 2020 research framework programme to support innovation in SMEs. Its objective is to develop and capitalise on the potential of SMEs by filling the gap in funding for early-stage high-risk projects and increasing private-sector commercialisation of research results. It is targeted towards innovative SMEs in the EU and 16 associated countries that show strong ambition to develop, grow and internationalise in all different types of innovation.

5. Recognizing the Drawbacks of Voucher Schemes

While voucher schemes offer significant potential for promoting innovation among SMEs, they are not without their drawbacks (see **Box 5**). Understanding these limitations is crucial for policymakers and stakeholders involved in designing and implementing voucher programs. Below are some key drawbacks that warrant attention and careful consideration to ensure the efficacy and integrity of voucher schemes in fostering innovation.

1. **Risk of One-Off Transactions:**
   a. Voucher schemes often lead to one-off transactions, akin to R&D grants, which may not result in sustained collaboration or long-term behavioral change towards innovation.
   b. Without ongoing support or follow-up mechanisms, there's a risk that collaborative efforts initiated through vouchers will not lead to lasting innovation practices.
2. **Risk of Failing to Reach the Intended Target Group:**
   c. Despite the intention to incentivize non-innovative SMEs, the entitlement-based nature of voucher schemes may lead to non-additionality.
   d. There's a high risk of mistargeting if there's insufficient investigation to determine whether applicants truly qualify as "non-innovative," potentially resulting in funds going to firms already engaged in similar projects.
3. **Risks of Knowledge Provider Lock-In:**
   e. Voucher schemes often rely on local knowledge providers for geographical convenience, leading to limited search patterns and the risk of knowledge provider lock-in.
   f. Local solutions may not always be the most effective or suitable for addressing SMEs' needs, potentially limiting innovation outcomes.
4. **Poor Supply of knowledge Services:**
   g. SMEs may face limitations due to the capacities and level of interest of the research and advisory sector in supplying services.
   h. Challenges in reconciling differing needs, timelines, and incentives between SMEs and knowledge providers may hinder effective collaboration.

5. **Risk of Misallocation and Abuse of Funds:**
   i. The flexible design and implementation of voucher schemes increase the risk of misallocation of public funds, potentially leading to fraudulent use.
   j. Complicity with knowledge providers, especially private ones, could result in false collaborations, particularly as the value of vouchers increases.
   k. Without proper oversight and verification mechanisms, there's a possibility of funds being directed towards ineligible or inappropriate projects, undermining the intended impact of the scheme.

These drawbacks highlight the importance of careful design, monitoring, and evaluation of voucher schemes to mitigate risks and maximize their effectiveness in promoting innovation among SMEs.

BOX 5. DRAWBACKS OF VOUCHER SCHEMES IN PRACTICE

Some **drawbacks** of voucher schemes have already materialised on some occasions or it is possible to provide some explanation for their origin. Some cases are:

- **Risk of One-Off Transactions**: In the cases of the UK (Kleine, Heite & Huber, 2022) and the Czech Republic (Hlaváček, 2017; Matulova et al, 2015) this risk materialised, and the collaboration was not maintained in the long-term.
- **Risk of Failing to Reach the Intended Target Group**: Vouchers may be given in order of application or on a random basis in order to reduce administrative costs, which in turn could lead to an inefficient distribution of funds. Likewise, if the aim is to save costs in determining the target audience, this audience may not be fully defined and, again, the distribution of vouchers will be inefficient in relation to the stated objective.
- **Risks of Knowledge Provider Lock-In**: Vouchers can be designed in such a way that it is necessary to find a new partner from a list of knowledge service providers that are part of the programme (Kleine, Heite & Huber, 2022). However, freedom is given to choose the partner from this list and, without setting additional conditions, there is no impact on the choice of partner, which may lead to choosing a partner less suited to the company's needs for geographical convenience.
- **Poor Supply of knowledge Services**: The case of the Czech Republic also exemplifies this risk (Klímová & Zitek, 2020). In regions with lower innovative capacity, the supply of knowledge services was poor, and vouchers take-up was lower than in the more competitive regions.

Moreover, it is worth noting that innovation vouchers are not the most efficient way to boost innovation in SMEs (see **Box 6**). This is the case shown by Caloffi et al (2022), in which they find that the provision of technology and innovation advice alone is sufficient if the objective is to increase SME R&D collaboration activities, their innovations, and their ability to identify potential R&D collaboration partners. For these objectives, innovation vouchers are less valuable. They also find that a combination of instruments has a greater impact on innovation in the long-term, but this example is an indicator that the situation and potential innovators must be properly assessed to choose the right innovation support policy.

BOX 6. FOUR KEY ISSUES RAISED BY THE EU COURT OF AUDITORS IN THE EVALUATION OF THE SME-I INITIATIVE

The SME Instrument (SME-I) was set up under the Horizon 2020 programme with the objective of developing and capitalising on the potential of SMEs by filling the gap in funding for early stage high-risk projects and increasing private-sector commercialisation of research results. The EU Court of Auditors (ECA) has studied the SME Instrument in action, raising four key issues about this initiative:

- The question of **additionality**: Stakeholders express concern about the risk of the SME-I displacing private

BOX 6. FOUR KEY ISSUES RAISED BY THE EU COURT OF AUDITORS IN THE EVALUATION OF THE SME-I INITIATIVE

investment, as indicated by survey results and interviews. Approximately 36% of respondents in Phase 2 believed their projects could have secured private funding, while 17% could have relied on internal company resources. This issue was also acknowledged by jury members.

- Addressing **financial market barriers**: Despite initial concerns, stakeholders note a subsequent "crowding-in" effect facilitated by EU grants, aiding beneficiaries in attracting additional funds. The introduction of the non-bankability concept in 2019 necessitates clear provisions for its demonstration, particularly considering the SME-I's branding and its impact on securing further financial resources.
- **Integration challenges**: While many beneficiaries require additional financing to advance their projects, the Commission has made limited efforts to connect SMEs' financing needs with EU-backed financial instruments. Although coaching and business acceleration services hold potential, their late launch and lack of customization to beneficiaries' needs have limited their effectiveness.
- **Monitoring outcomes versus access to funds**: While monitoring investment raised and company evolution is cost-efficient, it does not fully assess the instrument's impact. Disparities exist among participating countries, with SMEs in North-West Europe raising more private funding compared to those in southern and Eastern Europe.

Source: ECA (2020)

6. Pre-conditions for Implementing a Voucher Scheme

1. **Existence of SME and Knowledge Provider Communities**.

   Ensure the presence of both SMEs with innovation potential and knowledge providers capable of offering assistance in the targeted sectors[12].

2. **Potential for Additional Output and Behavioral Changes**.

   Assess the potential for generating additional outputs and behavioral changes with the introduction of a voucher scheme, even with small amounts of support[13].

3. **Well-Identified Target Group**.

   Clearly define the target group in terms of size and sector, supported by a justification outlining the rationale for providing assistance to this specific group[14].

4. **Establishment of a Competent Managing Agency**.

   Designate a well-identified agency responsible for the management and administration of the voucher scheme, ensuring efficiency and transparency in its operations.

5. **Defined Monitoring Strategy**.

   Develop a monitoring strategy that effectively tracks the progress and impact of the voucher scheme, balancing the need for rigorous evaluation with cost considerations relative to the size of financial support provided.

6. **Presence of Water Innovation Cluster or Network**.

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[12] Vouchers should be seen as a matching mechanism rather than demand or supply fostering mechanism. See for example: Guimón & Paunov, 2019; Ivashchenko, Kornyliuk & Polishchuk, 2021.

[13] In this sense, when multi-regional voucher schemes have been applied, the results have been better in those with more institutional development and more innovation available to incorporate (Xu & Guo, 2023; Klímová & Zitek, 2020).

[14] Targetting means that vochers should be designed to a purpose that must be clearly defined, so that the conditions of participation do not lead to distributing the vouchers to the first to apply but to those who will obtain the highest return from it (Sala, Landoni & Verganti, 2016; Lim, 2023).

Ensure the availability of a water innovation cluster or similar network capable of providing matching services and supporting additionality, facilitating collaboration and knowledge exchange among stakeholders (for further information see **Box 7**).

7. **Establishment of Brokerage Mechanisms**.

   Implement brokerage mechanisms such as dedicated teams or networks of knowledge providers to facilitate connections between SMEs and relevant expertise, maximizing the effectiveness of the voucher scheme.

8. **Progressive Support Strategy**.

   Develop a progressive strategy for providing long-term support to expert firms identified through the voucher scheme, nurturing their growth and sustainability over time.

By addressing these pre-conditions, stakeholders can lay the groundwork for the successful implementation and operation of a voucher scheme, maximizing its impact on fostering innovation and driving economic development within targeted sectors.

BOX 7. WATER INNOVATION CLUSTERS: INDISPENSABLE FOR FACILITATING SME-KNOWLEDGE PROVIDER COLLABORATION

Water innovation hubs and clusters in the EU indeed play a critical role in fostering collaboration with SMEs for water innovation. These hubs and clusters serve as focal points where various stakeholders, including SMEs, research institutions, industry experts, and policymakers, come together to exchange knowledge, share resources, and collaborate on innovative projects related to water management, treatment, and conservation. These entities serve as platforms for collaboration, knowledge sharing, and innovation in the water sector within their respective regions. They bring together stakeholders including SMEs, research institutions, government bodies, and industry experts to address water-related challenges, develop new technologies, and promote sustainable water management practices.

Some examples of water innovation hubs and clusters in the EU include:

- **Dutch Water Technology Centers**: The Netherlands is renowned for its expertise in water management and technology. Several water technology centers, such as Wetsus and WaterCampus Leeuwarden, serve as hubs for research, innovation, and collaboration in water-related fields.
- **Water Alliance (Netherlands):** The Water Alliance is a cluster organization based in the Netherlands that aims to accelerate innovation in the water sector.
- **SWAN (Smart Water Networks Forum)**: SWAN is a global network of water utilities, technology providers, and industry experts focused on advancing smart water technologies and solutions. While not specific to the EU, SWAN's European chapter and regional initiatives promote collaboration among European stakeholders to drive innovation in water infrastructure and management.
- **Scotland's Hydro Nation Innovation Service (HNIS)**: Scotland's HNIS is dedicated to supporting innovation in the water sector by connecting SMEs with research expertise, funding opportunities, and international partnerships.

The Catalan Water Network, ZINNAE in Aragon and centers in Denmark such as the Danish Water Technology Alliance are also innovation hubs and clusters in the EU.

- The **Catalan Water Network (Xarxa Catalana d'Aigua)** fosters collaboration among stakeholders in Catalonia to drive innovation and promote the efficient and sustainable use of water resources in the region.
- **ZINNAE (Zaragoza's Cluster of Environmental and Water Technology Companies)**, in Aragon serves a similar purpose, focusing on environmental and water technology companies in the Zaragoza area to support innovation and competitiveness in the sector.
- In Denmark, the **Danish Water Technology Alliance** plays a crucial role in connecting SMEs, research institutions, and other stakeholders to accelerate innovation in water technology and solutions.
- These examples demonstrate the diverse range of water innovation hubs and clusters in the EU, each playing a vital role in fostering collaboration, driving innovation, and addressing water-related challenges.

BOX 7. WATER INNOVATION CLUSTERS: INDISPENSABLE FOR FACILITATING SME-KNOWLEDGE PROVIDER COLLABORATION

These examples demonstrate the diverse range of water innovation hubs and clusters in the EU, each playing a vital role in fostering collaboration, driving innovation, and addressing water-related challenges.

7. Recommendations for Assessing the Performance of existing a Voucher Scheme

Assessing the performance of voucher schemes is crucial for understanding their effectiveness in promoting innovation and collaboration among small and medium-sized enterprises (SMEs) and knowledge providers. Several dimensions must be considered when designing, implementing, and evaluating the outcomes of voucher schemes.

These criteria serve as key indicators to measure the success and impact of voucher programs. By systematically examining these aspects, policymakers and stakeholders can gain valuable insights into the strengths, weaknesses, and overall effectiveness of voucher schemes in achieving their objectives.

As highlighted in **Box 8**, National Innovation Agencies (NIAs) play a crucial role in the performance of voucher schemes. These agencies act as intermediaries between innovative SMEs and the opportunities provided by the voucher schemes, significantly influencing the participation and success rates.

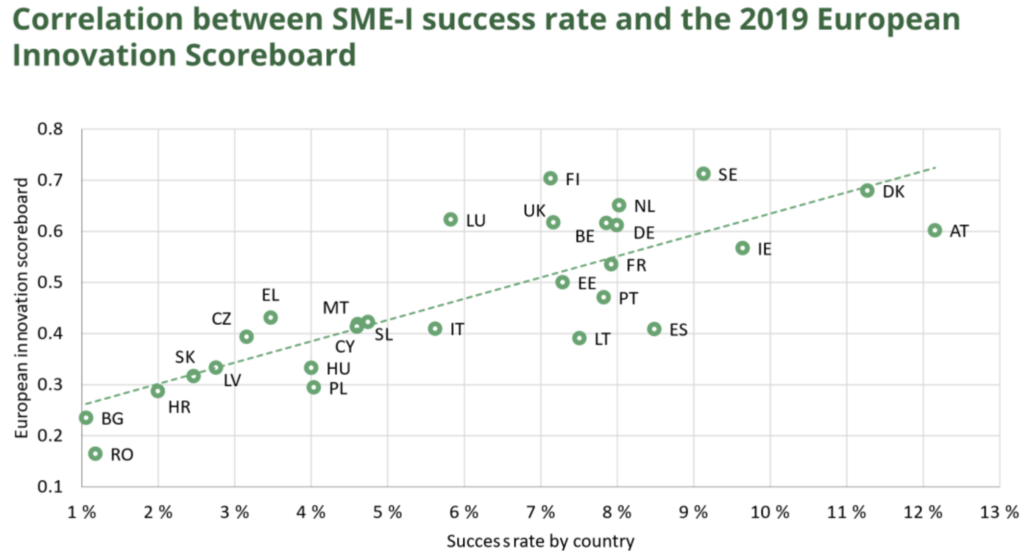
BOX 8. THE KEY ROLE OF NATIONAL INNOVATION AGENCIES IN VOUCHER SCHEME PERFORMANCE

A notable commonality among countries with high participation and success rates in the voucher scheme is the presence of an active **national innovation agency**, which serves as an intermediary with innovative SMEs. Disparities in success rates among countries are partly attributed to varying levels of innovation. As illustrated in the figure below, there is a strong correlation between success rates in the SME Instrument and the European Innovation Scoreboard Summary Innovation Index. Conversely, the three Member States with the lowest participation levels (relative to the number of SMEs) and lowest success rates lack a NIA.

Despite being classified as a moderate innovator according to the European Innovation Scoreboard, Spain boasts one of the highest success rates. Similarly, Ireland and Denmark actively promote the instrument and prepare their SMEs for participation. Spain serves as a prime example of a Member State with a national strategy supporting innovative companies eligible for the SME Instrument. Spanish authorities have established a system to promote the SME Instrument, actively seeking highly innovative companies and assisting them in the application process.

A common characteristic of participant countries with high participation and success rates in the instrument is the presence of an active national innovation agency (NIA), which acts as intermediary with the innovative SMEs.

BOX 8. THE KEY ROLE OF NATIONAL INNOVATION AGENCIES IN VOUCHER SCHEME PERFORMANCE



Source: ECA, 2020

Let's delve into the most widely used criteria for assessing the performance of voucher schemes:

1. **Selection of Recipients.**
   a. Voucher schemes typically operate on an entitlement-based basis, often utilizing a first-come, first-served or randomized selection process.
   b. It is essential that the application and verification processes ensure the emergence of genuine collaborations.
2. **Value of Financial Support.**
   c. Matching funding from companies may be required when the cost of work requested exceeds the value of the voucher. Differentiated voucher values may target various activities, such as consulting services or product development.
   d. While matching features can encourage collaboration commitment, they may compromise behavioral additionality by supporting firms already engaged in innovation.
3. **Effectiveness of Brokerage Support.**
   e. Brokerage support, whether provided by dedicated personnel or accredited external private providers, is crucial for smoothing the implementation process.
   f. Brokers facilitate coordination, manage transaction costs, verify knowledge transfer, and ensure a good match between SMEs and providers (for further information see **Box 8**).
4. **Avoiding Moral Hazard: Solution Random Monitoring.**
   g. To mitigate the risk of fraudulent use, agencies can conduct random verification checks, discouraging beneficiaries from claiming nonexistent services.

5. **Achieving Output Additionality.**
   h. Output additionality, including project and economic impacts in terms of gross value added (GVA) or full-time equivalent jobs (FTEs), is a primary objective of voucher schemes.
   i. Evaluations typically differentiate between full additionality (projects that would not have occurred without vouchers) and partial additionality (projects influenced by voucher support).
6. **Achieving Behavioral Additionality.**
   j. Behavioral additionality measures the extent to which recipients maintain relationships with knowledge providers, particularly aimed at encouraging non-innovative firms to innovate and fostering collaboration among non-collaborating firms.
7. **Making the Most of Potential Spillover Effects.**
   k. Voucher schemes often lead to wider business benefits, such as improved public profiles and increased credibility through university collaborations. For knowledge providers, benefits may include new research opportunities, enhanced commercial awareness, and expanded teaching opportunities.

By considering these criteria, policymakers and stakeholders can effectively evaluate the performance and impact of voucher schemes in fostering innovation and collaboration among SMEs and knowledge providers (see **Box 9** on some practical advices on the design and implementation process of vouchers).

BOX 9. DOS AND DON'TS OF VOUCHER SCHEMES

DOS	DON´TS
• Before deciding to use voucher schemes, take stock of the supply and demand of innovation-related knowledge services. • Design simple application and selection procedures that have lower entry costs than matching grants. This is critical given the target population of noninnovative SMEs. If oversubscribed, use randomization or transparent selection mechanisms. • Increase SMEs' awareness of the voucher schemes through proactive advertising and outreach activities, particularly if targeting sectors not usually associated with innovation. • Set up brokerage services throughout the policy cycle to smooth the implementation process. These can be effective in increasing the quality of the matches. • Provide feedback to knowledge providers from SMEs on their performance, as the former are often inexperienced at dealing with SMEs.	• Don't overcomplicate the procedure for potential voucher recipients. Although the need to collect data means that some administrative requirements are necessary, schemes should use brokerage and random audits to simplify processes. • Don't leave the list of potential service providers open. Instead, define clear requirements and, if needed, provide a list of accredited providers. Don't ignore the potential roles of knowledge providers. For instance, they should be able to handle most of the paperwork involved to ease the burden on SMEs. • Don't overstretch the scope of voucher schemes. Although they can support a wide range of activities, keeping their scope limited helps simplify procedures and control costs. • Don't expect the development of large innovation projects. Vouchers are an

BOX 9. DOS AND DON'TS OF VOUCHER SCHEMES

• Seek to ensure the availability of simple generic templates to cover common areas such as standardized contracts and intellectual property agreements. • Conduct random verification of identified collaborative projects to minimize the risk of fraud. • Conduct systematic data collection to enable policy evaluation, learning, and improvement. Use random audits to monitor programs.	instrument to encourage behavioral change through small projects. • Don't just assume public sector providers are the only providers; there may be good reason to involve private research organizations and/ or providers of business advisory services.

Source: Cicera et al., 2020

8. A Note on Closing the Innovation Circle: Product Vouchers

Voucher schemes and similar initiatives can be used to promote the demand for innovative products such as solar panels and other sustainable technologies. These schemes often target consumers, businesses, or public sector organizations to encourage adoption and investment in innovative products that contribute to sustainability, energy efficiency, and environmental protection.

Here are a few examples of voucher schemes and similar initiatives designed to promote the demand for innovative products:

- **Subsidies and Rebates**.

  Governments may offer subsidies or rebates to consumers or businesses purchasing innovative products such as solar panels, energy-efficient appliances, electric vehicles, or other clean technologies. These subsidies can help reduce the upfront costs and make innovative products more affordable, thereby incentivizing adoption and driving market demand.

- **Green Procurement Programs**.

  Public sector organizations, including government agencies, municipalities, and educational institutions, often implement green procurement programs that prioritize the purchase of environmentally friendly and sustainable products. Voucher schemes or incentives may be offered to encourage public sector entities to procure innovative products that meet specific sustainability criteria, such as energy efficiency standards or lifecycle assessments.

- **Energy Efficiency Voucher Programs**.

  Some regions or countries have implemented voucher programs specifically focused on promoting energy efficiency measures and technologies. These programs may provide vouchers or financial incentives to homeowners, landlords, or businesses to invest in energy-saving upgrades such as insulation, efficient heating and cooling systems, LED lighting, and smart thermostats.

- **Innovation Procurement Initiatives**.

  Innovation procurement involves using public procurement processes to drive innovation and stimulate the development and uptake of new technologies and products. Voucher schemes or funding programs may support pilot projects, demonstrations, or pre-commercial procurement initiatives that enable public sector organizations to test and deploy innovative products in real-world settings.

- **Green Financing Mechanisms**.

  Financial incentives such as green loans, tax credits, or preferential financing terms can also promote the demand for innovative products by making it easier for consumers or businesses to access funding for sustainable investments. Voucher schemes may complement these financing mechanisms by providing additional support or incentives to encourage uptake of specific innovative products or technologies.

These voucher schemes and initiatives play a crucial role in accelerating the market adoption of innovative products by addressing barriers such as high upfront costs, consumer inertia, and market uncertainty. By incentivizing demand and supporting investment in sustainable technologies, they contribute to the transition towards a more environmentally friendly and resilient economy.

9. Concluding Insights: 20 Years of EU Voucher Scheme Lessons

Voucher schemes and similar initiatives can be used to promote the demand for innovative products such as solar panels and other sustainable technologies. These schemes often target consumers, businesses, or public sector organizations to encourage adoption and investment in innovative products that contribute to sustainability, energy efficiency, and environmental protection.

- **Voucher schemes are about business support, not about money**. The key to success comes from embedding voucher schemes in comprehensive Business Support. Vouchers have low amounts and do not make up for lack of financing. Their objective is to establish a working connection and cooperation between (small) companies and service providers, which will eventually result in further investments or transformations in businesses. Those resulting investments, innovation or other kind of growth-oriented projects might then require further soft or financial support schemes.
- **Voucher schemes are not meant to last forever**. Remember that voucher schemes are designed to be temporary solutions, addressing specific market gaps and encouraging rapid adaptation to changing business environments. Consequently, if the voucher scheme fulfils its role and contributes to close the specific issue or gap addressed it should also be stopped.
- **Vouchers are easy to deliver but hard to manage**. Be aware that while voucher schemes are praised for their user-friendly approach, they demand meticulous administrative processes behind the scenes to maintain integrity and governance. It is quite a challenge for the managing organisation to keep up to the promise to the user. Innovation voucher schemes come with the necessity for service providers to get an accreditation and to guarantee minimum quality standards in service delivery.
- **Replication does not guarantee effectiveness**. Keep in mind that widespread replication of voucher schemes across sectors does not automatically ensure their effectiveness; careful consideration of context and objectives is essential for meaningful impact. The voucher is a customer-friendly and adaptable tool, which makes it attractive as a policy instrument. But that would not be equivalent to say that vouchers are always useful as business support delivery.
- **Long-term impacts of vouchers are easy to assess**. Not all policy instruments' impacts are that easy to assess in the medium or long term. Vouchers are small, short-term incentives aiming at long-term impacts. The voucher schemes are based on the fact that they incite companies

towards implementing or starting activities that might not take place – or at least not on the same scale - without the vouchers. Consequently, with appropriate monitoring the impact of the vouchers can be easily examined in a long-term perspective.

- **Impacts should be amplified through strategic promotion**. Recognize that strong promotion is imperative for the success of voucher schemes, ensuring widespread awareness and uptake among SMEs and maximizing their impact on industry transformation. This also implies that the impact of information about the tangible benefits for businesses and communicating on the success stories, so as to increase the speed of the transformation aimed for in the industry.
- **Voucher schemes and similar initiatives** can be used to promote the demand for innovative products such as solar panels and other sustainable technologies. These schemes often target consumers, businesses, or public sector organizations to encourage adoption and investment in innovative products that contribute to sustainability, energy efficiency, and environmental protection.

10. Final Remarks and the Way Ahead

This deliverable offers a comprehensive review of the EU's extensive experience in designing and implementing voucher schemes—a cornerstone in engaging SMEs in the innovation process and fostering collaboration with knowledge providers. These schemes have evolved from establishing initial contacts and common agendas to integration into a complex financial ecosystem that spans the entire innovation process.

Now integral to the Horizon EU research and innovation program, voucher schemes are part of a sophisticated institutional framework coordinated between EU institutions and national research agencies. This framework is bolstered by a diverse and well-structured ecosystem of financial instruments aligned with the strategic priorities of the Union, particularly those outlined in the Green Deal.

Understanding the workings of voucher schemes is paramount as they play a pivotal role in triggering collaboration and innovation processes. This deliverable aims to provide key insights to support Water4All efforts in improving the design, implementation, and evaluation of voucher schemes, aligning them with the objectives of the Water4All research and innovation agenda.

Moreover, this document is expected to facilitate dialogue with national agencies, water innovation hubs and clusters, water-oriented living labs, and other stakeholders. It will help unlock the potential of financial instruments to foster collaboration among innovators and SMEs.

Moving forward, the report will contribute to developing a comprehensive map of financial opportunities for collaboration at the EU, national, and regional levels. This map will progressively be incorporated into the Water4All Outlook of Financial Opportunities. Additionally, it will guide discussions with stakeholders, assessing national and regional experiences and making recommendations for their adaptation to the needs of the water innovation community.

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